BRAINWARE UNIVERSITY

Term End Examination 2024-2025
Programme – B.Sc.(BT)-Hons-2022
Course Name – Rural Biotechnology
Course Code - BBTD504C
(Semester V)

Full Marks : 60 **Time : 2:30 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A
(Multiple Choice Type Question) 1 x 15=15

1. *Choose the correct alternative from the following :*

(i) Recall which of the following bacteria is the causal organism of bacterial blotch in mushroom cultivation?
   a) Pantoea
   b) Pseudomonas tolaasii
   c) Pseudomonas agarici
   d) Cladobotryum dendroides

(ii) A farmer notices cobweb-like fungal growth on their mushrooms. What should he implement immediate action should they take to control the spread of the disease?
   a) Apply sodium hypochlorite solution
   b) Spray prochloraz manganese or metrafenone
   c) Adjust humidity levels and increase airflow
   d) Use streptocycline and oxytetracycline

(iii) Identify Which of the following is considered biodegradable waste?
   a) Plastic
   b) Paper
   c) Styrofoam
   d) Polythene

(iv) Identify what type of earthworm is Lumbricus terrestris?
   a) Epigeic
   b) Endogeic
   c) Anecic
   d) Parasitic

(v) Demonstrate how climate change influences water availability in glacial regions.
   a) By reducing glacial meltwater availability due to shrinking glaciers
   b) By increasing rainfall in all regions
   c) By providing constant water flow from glaciers
   d) By replenishing aquifers annually

(vi) Define which step in the EIA process involves identifying key environmental issues for a dam project?
   a) Increasing dam height
   b) Developing a comprehensive relocation plan

c) Enhancing hydropower output
d) Constructing alternative cultural sites

(vii) Identify the most suitable nursery bed for an area prone to heavy rainfall.

a) Flat Bed
b) Raised Bed
c) Sunken Bed
d) Terraced Bed

(viii) Determine how can nursery managers overcome the challenges of pests and diseases without using excessive chemicals?

a) Increase pesticide usage
b) Adopt Integrated Pest Management (IPM) strategies
c) Switch to monoculture farming
d) Avoid using fertilizers

(ix) Select which of the following species of earthworm is commonly referred to as the 'European Worm'?

a) Eudrilus eugeniiae
b) Eisenia foetida
c) Perionyx sansibaricus
d) Lumbricus terrestris

(x) Describethe product of vermicomposting.

a) Fertilizer with no humus content
b) Peat-like material known as vermicompost
c) Compost that contains synthetic chemicals
d) Highly toxic soil conditioner

(xi) Identify which of the following is an example of growing media commonly used in nurseries?

a) Concrete
b) Cocopeat
c) Pebbles
d) Sandpaper

(xii) Cite the recommended pH range for most nursery plants?

a) 3.0-4.5
b) 6.0-7.5
c) 8.0-9.5
d) 5.5-6.0

(xiii) Choose which of the following vegetative propagation methods involves joining the tissues of two plants to grow as one?

a) Grafting
b) Layering
c) Cutting
d) Division

(xiv) Define which method is commonly used for the long-term preservation of button mushrooms?

a) Freeze-drying
b) Canning
c) Sun-drying
d) Fermentation

(xv) Determine in which situation would you use a phase-II tunnel in a mushroom composting unit?

a) For inoculating spawn into compost
b) For pasteurizing and conditioning compost
c) For harvesting mushrooms
d) For drying mushrooms

Group-B

(Short Answer Type Questions) 3 x 5=15

2. Describe the role played by soil pH on the earthworm populations? (3)
3. Explain climate resilient water management (3)
4. Cite two medicinal mushroom and their medicinal values (3)
5. Judge the role of soil pH in seedling growth. (3)
6. Evaluate the role of composting in reducing greenhouse gas emissions. (3)

OR

Devise a strategy to optimize the vermicomposting process by incorporating various organic waste materials. (3)

Group-C

(Long Answer Type Questions) 5 x 6=30

7. Analyze how environmental factors such as humidity, temperature, and light affect mushroom growth and development. (5)
8. Evaluate the long-term benefits of using vermicompost over chemical fertilizers in improving soil fertility and plant health. (5)
9. Contrast surface water and groundwater in terms of availability and sustainability of use. (5)
10. Deduce the charecteristics of the cob web disease and its management strategy. (5)
11. Describe the diffrent types of earthworms found globally. (5)
12. Evaluate the role of growing media in the health and growth of nursery plants. (5)

OR

Justify the need for automated irrigation systems in large-scale nurseries. (5)

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